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STATEMENT BY THE HONORABLE
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BEFORE THE
COMMITTEE ON COMMERCE, SCIENCE AND TRANSPORTATION
UNITED STATES SENATE
February 19, 1980

Mr. Chairman and members of the Committee, I am pleased to represent the U.S. Department of Agriculture (USDA) and present testimony concerning fertilizer and fertilizer trade with the Soviet Union.

Among its many responsibilities, USDA is charged with monitoring and assessing the many factors which affect the U.S. and world food and agricultural outlook. Fertilizer is one of the important factors. I will briefly review the current fertilizer situation and potential outlook with you. However, let me begin by addressing the factor dominating any discussion of the fertilizer situation: the question of U.S. exports of superphosphoric acid to the Soviet Union and USSR exports of ammonia to the United States.

U.S. superphosphoric acid has become our largest non-agricultural export to the Soviets. In 1979, these exports were the equivalent of about 560,000 metric tons of P_2O_5 , valued at approximately \$95 million. But while we have been exporting this product, used in phosphoric fertilizer production, to the USSR, the Soviets have been shipping us ammonia, which is used to produce nitrogen fertilizer. Last year, we imported more than 700,000 metric tons of Soviet ammonia—about 40 percent of our total ammonia imports—equivalent to 575 tons of nitrogen. This trade has been furthered by a 20-year agreement between Occidental Petroleum and the USSR.

To place this trade in perspective, our domestic use plus net exports of phosphoric fertilizer during 1979 totaled about 8.8 million tons P_2O_5 equivalent. Therefore, our exports to the USSR were the equivalent of about 6 percent of our total disappearance during 1979. Similarly, after accounting for foreign trade, our total use of nitrogenous fertilizers was about 12 million tons,

nitrogen equivalent; trade with the USSR was the equivalent of about 5 percent of our total disappearance.

Since the Soviet Union's invasion of Afghanistan, our fertilizer trade has come into question. On January 18, the President reversed an earlier decision and imposed a quota on Russian ammonia imports, limiting them to 1 million short tons (.9 million metric tons) in 1980, down from the 1.5 million tons covered in the Occidental agreement and the 1.2 million tons expected to be imported.

Second, effective February 4, in the interest of U.S. foreign policy, phosphate exports bound for the USSR were placed under validated license control and issuance of licenses were suspended pending completion of review of these exports. This action is part of a total review of U.S. export control policy vis-a-vis the Soviet Union, which the President directed take place.

We in the Department of Agriculture have played an active role in that review process, making our information and analysis of potential impact known to the Department of Commerce and other involved agencies. Secretary Bergland has made his position on this matter clear: he favors an embargo on exports of fertilizer to the USSR. While the question remains under review, it will be resolved in the near future.

The Fertilizer Situation

Before the suspension of grain shipments to the USSR, we had forecast U.S. consumption of fertilizer—nitrogen, phosphate and potash—to increase 3 to 4 percent, as a result of an increase in planted acreage and higher application rates. A paid diversion program, if offered, would mean a smaller increase. Fertilizer prices are substantially above 1978/79 levels in response to strong domestic and foreign demand and increasing fertilizer production costs.

Phosphate Market Situation

World production of phosphoric fertilizer in 1979/80 is expected to be about 34 million metric tons of P_2O_5 ; consumption is expected to be nearly 32

million metric tons. The United States will account for slightly under a third of world production—about 10.2 million metric tons P_2O_5 . With consumption likely to be about 5.2 million metric tons, our exports are likely to total about 4 million metric tons.

In 1979, the phosphate market was constrained by a world shortage of sulfur—a key input in manufacturing phosphoric acid. Serious production and/or distribution problems limited sulfur exports from Poland, Canada and Iran. Production costs soared worldwide, largely due to increasing prices for natural gas—essential in producing sulfur by the Frasch process which is prevalent in the United States.

World demand for sulfur remained strong and, in the face of tight supplies and rising production costs, prices soared. January 1980 spot prices for Canadian dry bulk sulfur were 140 percent higher than a year earlier. At such prices, sulfur input costs for manufacturing a ton of phosphoric acid climbed from about \$47 in January 1979 to about \$114 last month.

The combined effect of sulfur shortages and high prices prompted phosphate fertilizer producers such as India to import increased quantities of finished phosphate fertilizers. For example, in 1979, India imported 9 percent more diammonium phosphate (DAP) from the United States than the previous year in spite of prices which were as much as 48 percent higher than a year earlier.

Similar strong offshore demand has meant continued high levels of U.S. phosphate fertilizer exports during 1979, especially for the most concentrated products—phosphoric acid, concentrated superphosphate and DAP. Steady, strong export demand was combined with increased domestic phosphate consumption in 1978/79 when farm use of phosphate nutrients rose by 9 percent. Apparently, in fall 1979, domestic phosphate use increased again.

U.S. phosphate production increased between July 1979 and January 1980 and according to Fertilizer Institute Survey participants, was 6, 3 and 4 percent

higher for phosphoric acid, concentrated superphosphate and DAP, respectively. But these gains in production have not kept pace with rising foreign and domestic requirements. Accordingly, U.S. phosphate inventories have declined. January 1980 ending inventories at surveyed firms were 26, 39 and 27 percent below year-earlier stock levels for phosphoric acid, concentrated superphosphate and DAP, respectively.

While current, specific phosphate production and inventory statistics for other important phosphate producers are unavailable, we believe similar situations prevail outside of the United States. The U.S. phosphate market situation is strongly affected by general world market conditions; conversely, the world market is affected by the United States because the United States provides more than half of the phosphoric fertilizer traded in world markets.

World phosphate prices are expected to remain strong until sulfur becomes more abundant and until new or currently-idled phosphate capacity becomes operational. Sulfur traders currently believe that world sulfur markets will remain tight in 1980 and beyond but should be more orderly. Prices are expected to remain firm, but should not escalate as rapidly as in 1979.

One temporary logistical bottleneck affecting sulfur trade should be eliminated when repairs are completed on a damaged railroad bridge at Vancouver harbor in March. Eventually, new phosphate production facilities will be completed in Morocco, Tunisia, Jordan, Iraq, Algeria and Mexico which will add significantly to world phosphate supplies (table 1). However, much of that capacity is not scheduled to become operational until 1981, 1982 or beyond and commissioning delays are not uncommon in those areas.

In the future, world consumption of phosphate nutrients is expected to grow 5 to 6 percent annually. Growth in phosphate use will be slower in developed market economies than in the developing and centrally-planned countries.

However, growth in world phosphate supply capability is expected to be somewhat slower. During the next five years, it is expected to expand at about

4 to 5 percent annually. Again, growth in developed nations will be slowest, while developing and centrally-planned countries are expected to experience more rapid expansion. As a result of the more rapid growth of expected consumption compared with potential supply, the current world surplus supply capability—now constrained by sulfur supplies and logistical problems—is forecast to decline.

Nitrogen Market Situation

World production of nitrogenous fertilizer is estimated to reach about 57 million metric tons in 1979/80 while world consumption will likely be about 55 million metric tons. We believe U.S. production will be about 23 percent of world production—or about 13.6 million metric tons. Total agricultural and export demand for U.S. nitrogen fertilizer increased nearly 12 percent last year, with domestic use up about 7 percent. Our domestic consumption is expected to rise to 9.8 million metric tons in 1979/80 even though nitrogen fertilizer prices now are about 25 percent above a year ago. Net exports are likely to be between 200,000 and 300,000 metric tons.

Significant segments of world ammonia production capacity are based on naphtha, fuel oil and other petroleum derivatives. Prices for most of these products rose dramatically in 1979. There is the possibility that excessive feedstock costs may force some European and Asian ammonia plants to curtail production or be idled. If such closures were to occur widely, nitrogen prices will rise even more rapidly in the future.

In contrast, the U.S. ammonia industry is based upon natural gas feedstock and currently has idle capacity which could be reactivated if nitrogen fertilizer prices were to rise high enough to cover increasing production costs. Currently, we have 20 million short tons of domestic ammonia capacity in operation; it is estimated that 4 million short tons are idled—far more than the amount expected to be imported from the Soviet Union.

As I mentioned earlier, the Soviet Union is our largest single foreign supplier of ammonia. However, we also import ammonia from Mexico, Canada and Trinidad-Tobago. Together imports for these countries accounted for just over 1 million metric tons in 1979—about 60 percent of our total imports.

I would add that the Soviets have announced no policy action to halt their exports of ammonia to the United States. There is, however, a de-facto stoppage in shipments from the USSR as a result of the International Longshoremen's Association refusal to unload this product.

Five-year forecasts of nitrogen supply and demand indicate that world supply capability will increase more rapidly than growth in consumption. As a result, the size of the potential world nitrogen supply surplus is expected to grow.

It should be noted however, that these expectations for continued surplus supply capability for nitrogen are based upon the assumption that feedstocks for ammonia production will be readily available at reasonable prices which justify continued production.

Economic Effects of an Embargo

Impact on Soviets

The superphosphoric acid the Soviets have been importing from the United States is used in seven new plants designed to produce complex liquid fertilizer. These plants were designed to operate using SPA as a feedstock.

Presently, there are no other sources of SPA available in sufficient quantities to supply the plants. A capacity of about 100,000 tons exists in Europe, but it is largely for local use. And while there are many other suppliers of merchant grade phosphoric acid in the world, these acids cannot be used by the Soviets in the new plants. Converting the plants to use merchant grade material as a feedstock is possible but would cost the Soviets as much as \$13 million—20 percent of the cost of the original plants—and require one to two years to complete. These plants, therefore, will not be able to produce phosphate fertilizer for a year

or two beginning this spring unless our exports are resumed.

In the interim, the Soviets can turn to the world market for solid fertilizer material such as normal or triple superphosphates. They have done so to a limited degree, purchasing from Morocco. In the short run, world phosphate prices could rise if the Russians attempted to aggressively acquire supplies of phosphate from other exporting countries. But, increased supplies would be available as U.S. supplies, diverted from the Soviet Union, entered the world market. If the Soviets did not fully offset the SPA shortfall, the world price for phosphate fertilizer would be slightly lower, or the quantity used by the world excluding the USSR would be slightly higher, than would be the case in the absence of an embargo.

Perhaps the most serious impact on the USSR would be their inability to meet liquid fertilizer production goals. The Soviets view liquid fertilizer as an advanced technology for use with irrigation; they have established long-term plans and made major capital investments to build it into their cropping system. If they must use dry fertilizer material, they will face significant supply and distribution problems.

The impact of an embargo on phosphates from the United States would be relatively small this year in terms of the Soviet's ability to produce 1980 crops. However, the continued suspension of shipment of SPA would substantially reduce their ability to produce liquid phosphate fertilizer in 1980/81.

Essentially all of the acid scheduled to leave the U.S. from now on would be for the production of phosphate for use on the crops to be harvested in 1981. And, because crop response to phosphates is not as dramatic as in the case of nitrogen and because phosphates tend to be carried over in the soil, the relatively small reduction in supplies for this season would have only marginal impacts on 1980 crop production.

If shipments of SPA to the USSR were allowed to be moved from the U.S. for the 1981 crop, they would provide 10 to 15 percent of the P_2O_5 nutrient content

of phosphate fertilizers expected to be consumed in the Soviet Union--about 700,000 tons P_2O_5 equivalent. According to fertilizer-yield relationship studies published by the Soviets and used in their plans, a reduction of 700,000 tons P_2O_5 equivalent would reduce 1981 crop production 2 to 2 1/2 million tons. This, of course, could be minimized by imports of solid phosphoric fertilizers.

Domestic Impact of SPA Export Suspension

The barter arrangement of phosphates for ammonia and other products with the USSR results in an approximately equal dollar-for-dollar exchange with volume of product traded adjusted annually to accommodate changing price ratios. Therefore, the long-term U.S. balance of trade would be unaffected by the unhampered exchange of material. However, because we export diammonium phosphate and urea--produced with some imported ammonia--there is a secondary, positive impact on our trade accounts.

Suspending shipments of superphosphoric acid (SPA) could mean upward pressure on domestic phosphate prices would be reduced.

We could expect to increase our exports of merchant acid to other importing nations. In addition, SPA, merchant acid and solid fertilizer material could be sold in the domestic market. Net increases in supplies of phosphate material in the domestic market could reach 3 to 4 percent of expected domestic consumption. If so, farm prices of phosphates other than DAP could be 12 to 16 percent lower in 1980 than in the absence of a suspension.

But, as I mentioned earlier, Soviet ammonia is not entering the United States at the present time. The USSR was expected to supply 5-6 percent of our domestic use of ammonia. If this continues, we can obtain some supplies of ammonia from other countries but our total supplies would still be reduced--perhaps 1 to 3 percent. Farm prices for ammonia could rise 4 to 12 percent above levels expected before the disruption in supplies.

On balance, we would expect decreases in phosphate prices and farm cost would be approximately offset by increases in nitrogen prices and costs. Aggregate net farm income would remain relatively unchanged, but there would be regional differences.

Short term spot market wholesale prices for both phosphates and nitrogen can be expected to fluctuate by greater percentages than those mentioned previously, but the net impact at the farm level is expected to fall within the ranges suggested.

The most significant domestic impact would tend to fall on the Southeast Region which is most-heavily dependent on Russian ammonia imports. The region has rather poor and costly options for securing nitrogen supplies from alternative sources because rail service to the area is deficient and ammonia tank cars are not readily available. In this region it is possible that spot shortages of nitrogen products could appear during the planting season.

Special Problems of Diammonium Phosphate (DAP) Producers

Some ammonia customers in North Carolina and Florida use imported Russian ammonia to manufacture DAP. World demand for this material is exceptionally strong; producers are operating at near-capacity and inventories of manufacturers are 35 to 40 percent below year-earlier levels.

It would be difficult for these producers to quickly secure alternate supplies of ammonia because their plants are dependent on ocean-borne deliveries. Railroad capacity to supply these plants with domestic ammonia is not readily available. To replace Russian ammonia, these producers must turn to the world market and pay prices which are higher than their current contract price. Thus, a potential reduction in DAP supplies could result in considerable upward pressure on domestic prices.

Mr. Chairman, this concludes my prepared remarks. I will be happy to respond to your questions.

Table 1
World Capacity for Wet Process Phosphoric Acid, 1980-1985
(1,000 metric tons P₂O₅)

Region	Year					
	1980	1981	1982	1983	1984	1985
Western Europe	4,238	4,238	4,238	4,238	4,238	4,238
Eastern Europe	2,229	2,394	2,544	2,544	2,544	2,687
Yugoslavia	(591)	(756)	(906)	(906)	(906)	(906)
U.S.S.R.	5,763	6,933	7,263	7,263	7,263	7,263
Africa	2,594	3,419	3,475	3,640	3,640	3,640
Morocco	(825)	(1,485)	(1,485)	(1,485)	(1,485)	(1,485)
Algeria	(165)	(165)	(165)	(330)	(330)	(330)
Tunisia	(645)	(810)	(810)	(810)	(810)	(810)
South Africa:	(877)	(877)	(877)	(877)	(877)	(877)
Asia	3,027	3,594	4,527	4,527	4,527	4,741
Iraq	--	--	(400)	(400)	(400)	(400)
Isarel	(881)	(881)	(208)	(208)	(208)	(208)
Jordan	--	--	(413)	(413)	(413)	(413)
Turkey	(530)	(530)	(530)	(530)	(530)	(744)
India	(655)	(1,082)	(1,082)	(1,082)	(1,082)	(1,082)
Korea	(442)	(442)	(442)	(442)	(442)	(442)
Japan	(717)	(717)	(717)	(717)	(717)	(717)
Communist Asia	24	24	24	24	24	24
Oceania	196	261	261	261	261	261
North America	10,262	10,435	11,043	11,315	11,315	11,346
Latin America	1,375	1,438	1,746	1,746	1,746	1,746
Mexico	(548)	(611)	(809)	(809)	(809)	(809)
World Total	30,160	33,228	35,613	36,050	36,050	36,438

1/ Numbers in parentheses are included in region above.

Source: Tennessee Valley Authority, February 1980.

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